

DOCUMENT RESUME

ED 187 059

EC 124 324

AUTHOR Rotatori, Anthony T.; Fox, Robert
 TITLE A Comparison of Two Weight Reduction Programs for Moderately Retarded Adolescents.
 PUB DATE Apr 80
 NOTE 18p.; Paper presented at the Annual International Convention of The Council for Exceptional Children (58th, Philadelphia, PA, April, 1980, Session W-52).

EDRS PRICE MF01/PC01 Plus Postage.
 DESCRIPTORS Adolescents; Behavior Change; *Behavior Modification; *Body Weight; Exceptional Child Research; *Moderate Mental Retardation; Nutrition

ABSTRACT

A study of obesity management contrasted the effectiveness for 60 moderately mentally retarded adolescents of a multicomponent behavioral weight reduction program with a more traditional, nutrition based approach. Twelve Ss each were assigned to a behavior therapy (BT) and a social nutrition (SN) group, with the remaining six Ss in a wait-list control group (WLC). The behavioral approaches trained included the manipulation of emotional responses, food cue elimination techniques, changes in the act of eating, exercise, and development of alternative activities to eating. Ss received school and home reinforcement for weight loss. Topics for the SN group discussion included advantages of exercising, low calorie snack substitutes, and setting weight goals. Ss in the BT group lost significantly more weight than Ss in the SN or WLC groups. Ss in the BT group continued to lose weight during maintenance and followup. (CI)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED187059

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

A Comparison of Two Weight Reduction Programs
for Moderately Retarded Adolescents

Anthony T. Rotatori
Northern Illinois University

Robert Fox
Western Illinois University

Anthony T. Rotatori Ph. D.
Assistant Professor
Northern Illinois University
Department of Learning and
Development
DeKalb, Illinois 60115

Running Head: Weight Loss in the Retarded

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Anthony F. Rotatori

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

EC124324



Review articles by Hall and Hall (1974) and Stunkard (1975) have indicated that a number of behavioral approaches have successfully assisted obese individuals in losing weight. These approaches include aversive conditioning (Morganstern, 1974), covert sensitization (Horan, Baker, Hoffman & Shuts, 1975), contingency contracting (Kesseles, 1974), and self control techniques (Martin & Sacks, 1975). Multicomponent techniques including environmental manipulations, energy expenditure, and group learning procedures have also been used (Hall, 1972; Jeffrey & Christensen, 1975; Stuart, 1969).

In spite of the success of the above studies, only minimal attention has been directed towards demonstrating the effectiveness of behavioral approaches to weight control with mentally retarded individuals (Foreyt & Parks, 1975; Foxx 1972, Rotatori, Fox & Switxky, 1978; Staugaitis, 1978). The paucity of research in this area is surprising when considering the highly negative correlation reported between intelligence and obesity (Krege, Zelina, Juhas, & Garbara 1974).

In support of this correlation, Rotatori (1977) concluded that obesity is a significant health problem for the mentally retarded.

The purpose of the present study was to compare the effectiveness of a multicomponent behavioral weight reduction program with a more traditional, nutrition-based approach for achieving weight loss in obese retarded adolescents.

METHOD

Subjects

Thirty moderately retarded adolescents who resided with their



parents were recommended by their teachers to participate in a weight reduction program. All subjects attended vocational-orientated programs in a public high school. The following selection criteria were met by all subjects: (a) moderate mental retardation (b) were not taking medication for weight loss, (c) were at least ten percent overweight (Robinson, 1967) and (d) were not presently involved in any other weight program. Twelve subjects were assigned to each a Behavior Therapy (BT) and a Social Nutrition (SN) group. The remaining six subjects comprised the wait-list control group (WLC). Table 1 shows the ages, I.Q. scores and initial percent overweight for the three groups.

Insert Table 1 about here

A Kruskal-Wallis H Test (Welkowitz, Ewen, & Cohen, 1976) comparing ages, I.Q. scores and initial percent overweight indicated no significant differences between the three groups on these variables ($H = 5.66$ for age, $H = 4.79$ for I.Q. and $H = 4.01$ for percent overweight $p. > .05$).

PROCEDURE

Behavior Therapy

Parental Involvement. Prior to initiating the program, parents of the subjects attended an inservice meeting. They were trained in the behavioral weight reduction techniques and familiarized with the recording forms to be completed by their child. The parents role during the programs' implementation included: (1) assisting

their child with self monitoring forms, (2) providing direction and feedback in carrying out the behavioral techniques and (3) administering home reinforcement for weight loss.

Subject/Teacher Involvement. The subjects met with their vocational teacher three times a week during the 14 week training phase. The meetings were designed to instruct the subjects in behavioral techniques for weight reduction and in procedures for completing homework assignments (i.e., food diary, daily weight records). The behavioral approaches which were trained included the following: the manipulation of emotional responses (Hall, 1972), food cue elimination techniques (Stuart, 1969), changing the acts of eating (Stuart & Davis, 1972), using energy to burn up unneeded calories, and developing alternative activities to eating (Ferguson, 1975). Two new procedures were introduced each week.

The manipulation of emotional responses involved instructing subjects to verbalize aversive consequences when tempted to overeat (e.g., "my boyfriend will call me fatty") and to verbalize pleasant consequences when the subject was successful in not overeating (i.e., "I'm going to look great"). Food cue elimination techniques involved specifying one place to eat meals and snacks, leaving some food behind on the plate, and taking only one helping. Changing the act of eating included eating slower, chewing food completely, and putting utensils down on the table between bites. The development of alternative activities to eating involved encouraging the subjects to engage in pleasant activities which compete with eating such as

5
going for walks, listening to records, or working on a craft project. Lastly, the subjects were instructed to burn up unneeded calories by engaging in a 10-minute exercise period twice a day.

A number of instructional modalities were employed to facilitate the retarded subjects' understanding of the behavioral procedures during the intervention phase. First, the behavioral procedures were verbally described. A simple rationale was included in the description. The teacher then modeled the procedure for the subjects. This demonstration was followed by each subject practicing the procedure in a simulated situation. Feedback was provided to the subjects on their practice trials. Lastly, at the end of the meeting the teacher talked individually with each subject to tailor the procedure to fit the individual needs and to review and discuss progress on procedures introduced at past meetings. All sessions lasted approximately 50 minutes.

Reinforcement Component. During the intervention phase, all subjects received school and home reinforcement at the end of the school week for weight lost. Subjects had to lose one pound or more since the previous session's weight to receive reinforcement for weight lost. The home reinforcement was an activity desired by the subject (e.g. bowling with dad) whereas the school reinforcement was a group activity (e.g. classroom dance on Friday afternoon) chosen by the majority of subjects.

Additionally, the subjects rated their performance daily on the techniques that had been trained on a behavior checklist. Based on their ratings, the subjects received a grade which was dependent

upon total points earned for employing the techniques. The particular grades earned were then exchanged for an envelope which contained self-reinforcement guidelines. The self-reinforcement guidelines were divided into two areas, activity reward and self administered positive statement. The activities were tailored to fit the subject's reinforcer preference (i.e., watching television, listening to records, going for a walk). The self reward statement consisted of the subjects reading short positive comments about their performance. (e.g., I'm doing well on my diet).

Maintenance Condition. The maintenance training phase began immediately following the 14-week treatment period and lasted for five weeks. During this pahse all subjects attended a total of five sessions. The maintenance meetings included: (a) a video tape presentation which reviewed the behavioral techniques presented during the intervention phase: and (b) a review of self monitoring forms. Home and school reinforcement conditions were continued during this phase.

Social Nutrition. Subjects in this group met approximately four times a week for 19 weeks. The meetings were lead by the school nurse. Topics for discussion included: (1) good nutritious foods to eat; (2) low calorie snack substitutes; (3) the advantages of exercising; (4) reasons not to eat when emotionally upset; (5) talking about negative feelings associated with being overweight; (6) being positive about losing weight; and (7) setting weight goals. Any subject who lost weight was verbally praised by the nurse at the time of the weigh-in.



Wait List Control. Control subjects were informed that the weight reduction program was filled and another program would be started later. Subjects were encouraged to lose weight on their own and informed that the diet leader (school nurse) would weigh them periodically during the next few months to assess their progress.

Follow - Up

Sixteen weeks following the conclusion of the maintenance condition, the body weights of all subjects were obtained. No formal treatment was in effect during this period.

RESULTS

Treatment

Figure 1 presents the mean weight change in pounds for the three groups during the experimental conditions.

Insert Figure 1 about here.

ANOVA H TEST

A Kruskal-Wallis Anova H Test comparing percentage weight change between the three groups yielded a significant group difference ($H = 20.35, p < .01$). The protected Rank Sum Post Loc Test (Welkowitz, Ewen, Cohen, 1976) revealed the following differences at .05 level of significance $BT > SN$, $BT > WLC$ and $SN > WLC$. Subjects in the BT and SN groups had a mean weight loss of 10.27 and .08 pounds with a weekly average weight loss of .73 and .006 pounds per subject, respectively. In contrast the WLC group has a mean weight gain of 4.42 pounds with a weekly average weight

gain of .31 pounds per subject.

Maintenance

The percentage weight change of the three groups as assessed by a Kruskal Wallis H Test revealed a significant difference ($H = 12.19, p < .01$). The following significant differences were revealed by Protected Rank Sum tests: (1) $BT > SN$, (2) $BT > WLC$ and (3) $SN > WLC$. Subjects in the BT and SN groups had a mean weight loss of 2.29 and .16 pounds with a weekly average weight loss of .46 and .03 pounds per subject, respectively. Control subjects had a mean weight gain of 1.25 pounds with a weekly average weight gain of .25 pounds.

Follow-up

A Kruskal-Wallis H Test comparing percentages weight change of the three groups revealed a significant difference ($H = 13.36, p < .01$). Protected Rank Sum Tests indicated the following significant differences: (1) $BT > SN$ and (2) $BT > WLC$. The BT subjects had a mean weight loss of 1.94 pounds with a weekly average weight loss of .12 pounds per subject. In contrast the SN and WLC subjects had a mean weight gain of 1.83 and 3.00 pounds with a weekly average weight gain of .11 and .19 pounds per subjects, respectively.

DISCUSSION

The Behavior Therapy group lost significantly more weight under all conditions than either the Social-Nutrition or Wait List groups. The weight loss in the Behavior Therapy group was clinically impressive as a mean body weight change of 9.5 per cent was obtained. Hall (1972) indicated that studies which have produced significant weight loss



findings have reported weekly weight loss rates which have ranged from .50 to 1.00 pounds. The findings of the present study compare favorably as the subjects in the Behavior Therapy group attained weekly weight losses of .73 pounds per week during the treatment training period. This weekly weight loss is especially significant when considering that the subjects in the present study were moderately retarded adolescents, whereas, the majority of the studies in the literature employed subjects who were college students or professional individuals (Rotatori, 1977). More significantly for the present study, BT subjects continued to loose weight at the time of follow-up. This finding is meaningful because dieters regain weight after active treatment terminates (Stuart & Guire, 1978). The present treatment involved a "behavior strategy package". In such a program, one cannot identify which technique(s) are responsible for behavior change. However, as Azrin (1977) has stressed, package programs can be used "unapologetically" as little is gained by limiting the therapist to partial benefits for the sake of achieving experimental purity.

Obesity is a significant problem for adolescent retarded individuals. Since school is the primary training environment for many retarded adolescents, an important educational treatment consideration is the extent to which the school environment in conjunction with parents can assist obese retarded adolescents in loosing weight. For overweight retarded persons who will live in sem independent and independent community living environments in



the immediate future (i.e., adult group homes, foster homes), the mastery of behavioral weight reduction techniques would provide them with self management skills once external controls are withdrawn. However, the SN group did better than the control group which suggests it is better to do something than nothing because of the "deteriorating baseline" (Barlow & Hessen, 1973) which occurs if overweight retarded individuals are left on their own to lose weight.



References

- Azrin, N.H. A strategy for applied research: Learning based but outcome orientated. American Psychologist, 1977, 32, 140-149.
- Barlow, D.H., & Hessen, M. Single-case experimental designs: Uses in applied clinical research. Archives of General Psychiatry, 1973, 29, 319-325.
- Ferguson, J.M. Learning to eat: Behavior modification for weight control. Palo Alto: Bull Publishing Co., 1975.
- Foreyt, J.P. & Parks, J.T. Behavior controls for achieving weight loss in the severely retarded. Journal of Behavior Therapy and Experimental Psychiatry, 1975, 6, 27-29.
- Foxx, R.M. Social reinforcement of weight reduction: a case report on an obese retarded adolescent. Mental Retardation, 1972, 10, 21-23.
- Hall, S.M. Self-control and therapist control in the behavioral treatment of overweight women. Behavioral Research and Therapy, 1972, 10, 59-68.
- Hall, S.M. & Hall, R.G. Outcome and methodological consideration in behavioral treatment of obesity. Behavior Therapy, 1974, 5, 352-364.
- Horan, J.J., Baker, S.B., Hoffman, A.M. & Shuts, R.E. Weight loss through variations in the coverant control paradigm. Journal of Consulting and Clinical Psychology, 1975, 43, 68-72.
- Kesseles, S. Treatment of overweight. Journal of Counseling Psychology, 1974, 21, 395-398.
- Krege, A., Zelina, M., Juhas, J., & Garbara, M. Relationship between intelligence and prevalence of obesity. Human Biology, 1974, 46, 109-113.



- Martin, J.E., & Sachs, D.A. The effects of a self-control weight loss program on an obese woman. Journal of Behavior Therapy and Experimental Psychiatry, 1973, 4, 155-159.
- Morganstern, S.D. Cigarette smoke as a noxious stimulus in self-managed aversion therapy for compulsive eating: Techniques and case illustration. Behavior Therapy, 1974, 5, 255-260.
- Robinson, C.H. Normal and Therapeutic Nutrition. New York: MacMillan Co., 1967.
- Rotatori, A.F. The effect of different reinforcement schedules on the maintenance of weight loss with retarded overweight adults previously exposed to a behavioral weight reduction treatment package. Dissertation Abstract International, 1977, 38, 4738-N.
- Rotatori, A.F., Fox, R., & Switzky, H. Multicomponent Behavioral Program for Achieving Weight Loss in the Adult Retarded. 1978. Mental Retardation (in Press).
- Staugaitis, S.D. New directions for effective weight control with mentally retarded people. Mental Retardation, 1978, 16, 157-161.
- Stuart, R.B. Behavioral control of overeating. Behavior Research and Therapy, 1969, 5, 357-365.
- Stuart, R. B., & Davis, B. Slim chance in a fat world: Behavioral control of obesity. Champaign, Illinois: Research Press Co., 1972.
- Stuart, R. B., & Guire, R. Some correlates of the maintenance of weight lost through behavior modification. International Journal of Obesity, 1978, 2, 225-235.
- Stunkard, A.J. From explanation to action in psychosomatic medicine: The case of obesity. Psychosomatic Medicine, 1975, 37, 195-236.
- Welkowitz, J., Ewen, R.B., & Cohen, J. Introductory Statistics for the Behavioral Sciences. New York: Academic Press, 1976.

Table 1

Ages, I, Q.'s and Percent Overweight for Behavior Therapy, Social-Nutrition and Control Group Subjects.

Group	N	Ages in Years		I.Q.	Percent Overweight		
		X	S.D.		S.D.	X	S.D.
Behavior Therapy	12	18.20	1.79	44.50	3.20	20.50	9.90
Social Nutrition	12	17.90	1.62	45.10	2.99	19.80	10.80
Wait-List Control	6	17.65	1.80	44.75	2.85	20.10	10.10

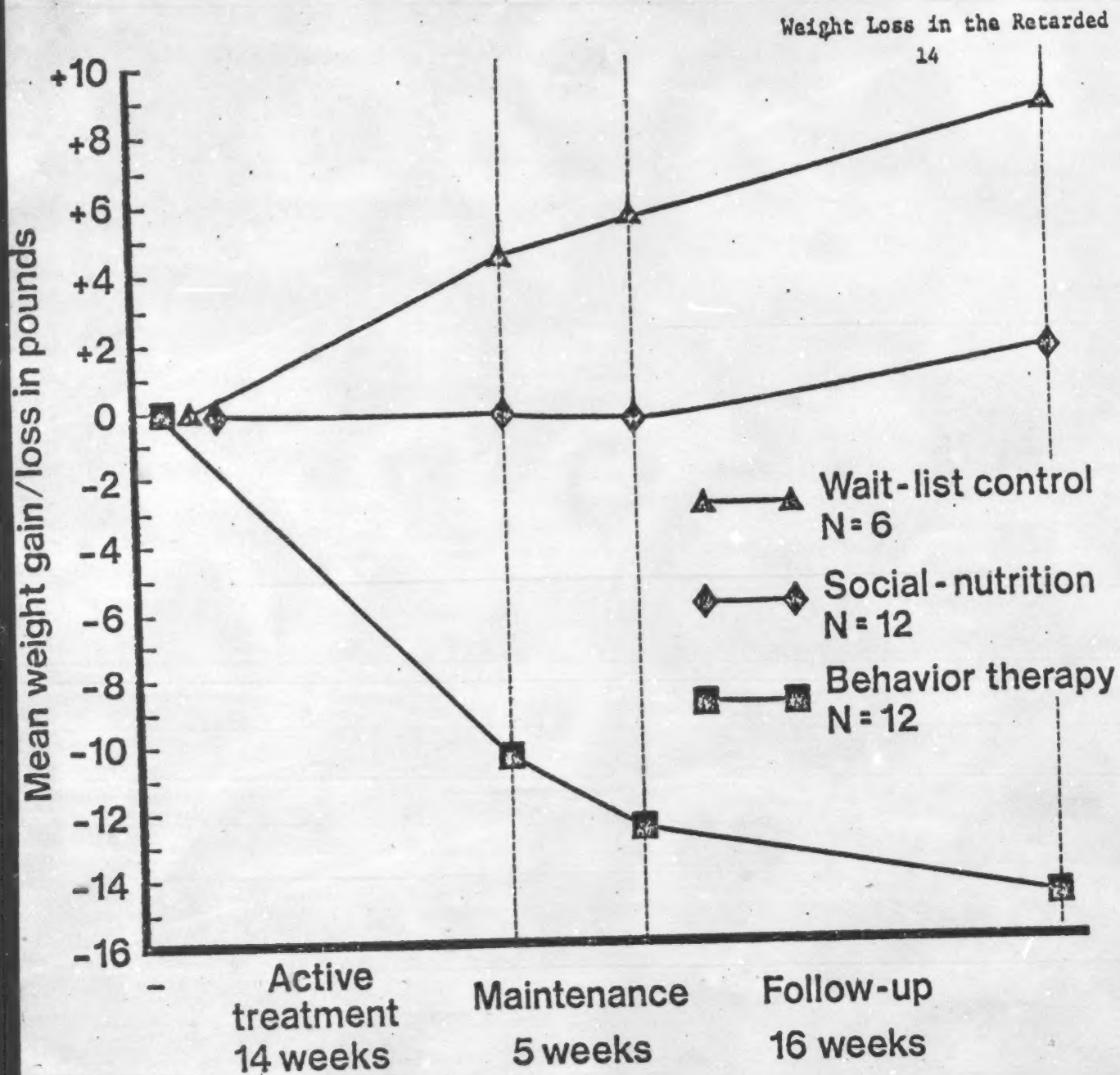


Figure 1.

Figure Captions

Figure 1. Mean weight loss or gain in pounds for the experimental and control subjects.



Reprints

Anthony F. Rotatori, Department of Learning and Development,
Northern Illinois University, Graham Hall 229, DeKalb, Illinois,
60115.

